

# Dvorak Developments

Dvorak Developments #51 (Volume 15, #1) • Spring 1988

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*Delay is not Unusual*

## **Dvorak will 'Diffuse' — With Communication and Time**

By Randy Cassingham

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*"To get the bad customs of a country changed and new ones, though better, introduced, it is necessary first to remove the prejudices of the people, enlighten their ignorance, and convince them that their interests will be promoted by the proposed changes; and this is not the work of a day."*

— Benjamin Franklin (1781)

**T**he diffusion of an innovation, from concept to full implementation into society, can be a very lengthy process. The Dvorak's diffusion into the world of typewriter and computer keyboards is a good case in point. In fact, it is such a good case that it is one of the first examples used by Professor Everett M. Rogers of Stanford University's Institute of Communications Research in his book, *Diffusion of Innovation*.

Diffusion, or the spreading of an idea among the people that will make use of it, is a field of study. Researchers like Dr. Rogers analyze the way that innovations spread — some very slowly, some very quickly. In his example of the Dvorak, Dr. Rogers points out the ignoble birth of the Qwerty layout and how it persists, even though "a much more efficient typewriter keyboard is available." He sketches Qwerty's genesis in 1873 as an "anti-engineered" solution to mechanical problems of early typewriters and how dissatisfaction with the Qwerty keyboard grew with the advent of touch typing in the early 1900s. But, even today, it is the most widely used keyboard in the world.

"One might expect," Dr. Rogers writes, "on the basis of its overwhelming advantages, that the Dvorak keyboard would have completely replaced the inferior Qwerty keyboard by now." But even with the adoption of the Dvorak as an "alternate" layout to Qwerty by the

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*If you are interested in learning more about how new ideas are spread, Diffusion of Innovation is a fascinating look at how innovations are, and sometimes aren't, adopted by society. The most recent edition (the third) was published in 1983 by The Free Press, a division of Macmillan. You might find it in your library, or any bookstore should be able to order it for you.*

American National Standards Institute and the Computer and Business Equipment Manufacturers Association, Dvorak is still used by relatively few "pioneers". "Technological innovations are not always diffused and adopted rapidly. Even when the innovation has obvious and proven advantages," he writes.

As Benjamin Franklin observed, many innovations are brought into society only after some hard-fought battles. The inventor must convince people "that their interests will be promoted by the proposed changes." Indeed, Dr. Dvorak himself may have scared off typewriter manufacturers from offering Dvorak keyboards when he first promoted his innovation —

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*"Technological innovations are not always diffused and adopted rapidly. Even when the innovation has obvious and proven advantages."*

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when he said that people could do their typewriter work in half the time, typewriter manufacturers heard that as 'businesses could do the same work while buying half as many typewriters'. Secretarial schools and "business colleges" heard it as 'only half as many typists would have to be trained'. In the eyes of these two large groups, the Dvorak keyboard certainly didn't promote their interests.

**D**r. Rogers points out that even if an idea is very obviously good and lives are at stake, innovations do not necessarily spread rapidly. Another case study detailed in *Diffusion of Innovation* tracks how the British Navy adopted a cure for scurvy. Scurvy, a disease that was common among sailors, is caused by a lack of vitamin C. In 1601, a British sea captain commanded four ships on a voyage to India. On his ship, he gave each of his men three teaspoonfuls of lemon juice every day. Most of the men on his ship stayed healthy, but 110 of the 278 men from the three other ships died of scurvy. The results were so clear cut that a British Navy doctor tried a similar experiment — a mere 150 years later. Results

*Continued on Page 7*

## Letters

### Maxi-Switch not Standard

I recently purchased the Maxi-Switch Dvorak keyboard which you reviewed in the Spring 1986 issue and found to my dismay that the numbering on the upper row began with the third key instead of the second key as it is on all Qwerty keyboards. This layout throws the number off to the right by one digit. The backslash is where the number one would normally be. Being a touch typist, I find this very annoying.

Since you did not mention this fact in your review, I was wondering if you also found this to be true. My concern is that my keyboard might have been assembled in error. Has the layout for the Dvorak keyboard been moved over one digit to the right?

Francisco De Villiers  
Santa Cruz CA

*The number row on the Maxi-Switch Dvorak keyboard is indeed moved to the right by one rank, which puts the "1" key between the quote and comma keys. This is contrary to the ANSI X4.22-1983 Dvorak standard and, I'm quite sure, it is also contrary to the Qwerty standard (i.e., the "1" should be to the left of the Qwerty "Q"). I can't think of any reason that Maxi-Switch would do it this way.*

*The reason I missed it when I reviewed the Maxi-Switch is that I do not touch type numbers on the upper row. If I am doing more than two or three digits, or want to type them without looking, I use the number pad (typically holding down the left Shift key to put the pad in the number mode instead of the cursor mode). I use two keyboards a lot; both are made by Maxi-Switch (one a Dvorak, the other a Qwerty multi-function board with PCKey to convert it to Dvorak), and only the Dvorak one has the offset row. Even going back and forth between the two keyboards, I never have been bothered by the discrepancy.*

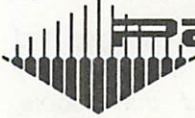
*Since the keyboard seems to be designed that way, I doubt that Maxi-Switch will offer a fix for your keyboard. Interestingly, Maxi-Switch's ad for their Dvorak keyboard in that Spring 1986 issue has a photo of the keyboard. The photo, though, depicts a Qwerty layout, and it can be clearly seen that the number row on that Qwerty keyboard is in the proper position to conform to the ANSI standard.*

*Sorry we missed that point in the review, and that it caused you a problem.*

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Letters should be addressed to **Randy Cassingham**, Editor, *Dvorak Developments*, PO Box 1895, Upland CA 91785. While not all letters can be personally answered, the most interesting will be printed here after being edited for length and clarity.



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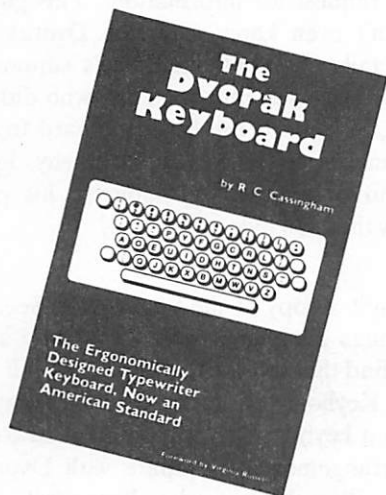
## The Dvorak Keyboard...

"... is one of the most fascinating books I've had the pleasure to read lately. Cassingham really did his research on this book."

— Mark Nolan, *Information Marketing Newsletter*

"If you are after good, useful, hard-to-find (Dvorak) keyboard information, this book will be invaluable to you."

— David McLanahan, *ComputerSmyth*



*The Dvorak Keyboard* will answer your questions about the Dvorak keyboard, or we'll give you your money back.\* Written by Dvorak Developments editor Randy Cassingham, *The Dvorak Keyboard* is the **only** book of its kind. Everything you want to know about the Dvorak is here in one place. Only \$12.95 per copy, plus \$1 shipping (for fast airmail delivery, add an extra dollar). California residents please add 78¢ sales tax per copy.

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## Bibliographic Notes

*REMark*, June 1987. An article describing how to convert the Zenith Z-100's keyboard to Dvorak.

On January 12, 1988, the Hartford (Connecticut) *Courant* ran an interesting article on Aetna Insurance Company's use of the Dvorak (Aetna's headquarters is located in Hartford). A shorter, general version of the story was later syndicated to hundreds of other newspapers around the country.

## An Ideal Way to Convert Your PC to Dvorak

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## From the Editor's Keyboard

by Randy Cassingham

### MS-DOS 3.2 has Dvorak Included

A couple of people have brought it to my attention that some copies of MS-DOS 3.2 have a Dvorak keyboard driver included. In addition to the standard filters that come with this IBM operating system (the KEYBxx.COM programs, to give your computer a French, United Kingdom, Italian, etc. keyboard), *some* versions of MS-DOS also have a KEYBDV.COM program to give your computer a Dvorak layout.

It is unclear which versions of MS-DOS 3.2 have the Dvorak program file and which do not. One copy that I saw, MS-DOS 3.21, which apparently was marketed directly by Microsoft (the developers of MS-DOS), did have it. But another copy of MS-DOS 3.21,

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*Ignoring the pitches for the Mac, I  
sauntered almost unnoticed to the  
Toshiba to see what WP 5 looked like.  
One of the features, just barely touched  
upon, was the "soft keyboard" that can  
be programmed for any layout.*

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this one packaged with the popular Leading Edge computers, did *not* have the KEYBDV program, though it did have the foreign language drivers.

Now it really gets confusing: Microsoft completely rewrote the keyboard driver programs for the newest MS-DOS release, version 3.3. So far, apparently *none* of the copies of 3.3 have the Dvorak driver available.

Why did Microsoft put Dvorak in for just one version and then take it out again? I'm not sure. I'm trying to track down someone at Microsoft that knows the story and ask.

### WordPerfect Making Strides Toward Dvorak too...

Microsoft isn't the only huge software company that has taken interest in the Dvorak, though. I recently went to a demonstration of the newly released WordPerfect for the Macintosh. What caught my attention there, though, wasn't the Macintosh WordPerfect, but a Toshiba MS-DOS laptop computer set up in the corner running the about-to-be-released WordPerfect 5.

Ignoring the pitches for the Mac, I sauntered almost unnoticed to the Toshiba to see what WP 5 looked like. It was interesting, but with no brochure or manual nearby, I really didn't know what the features of the new program were. So I told WP 5 to scan its own disk to tell me what files were there, and darned if there wasn't a file that explained the new features.

I called up that file and skimmed through it. One of

the features, just barely touched upon, was the "soft keyboard" that can be programmed for any layout. It mentioned two applications for this: foreign languages and *a Dvorak layout, which is apparently included with the program.*

Of course, I pounced on the salesman with questions. He knew what the Dvorak keyboard was, but didn't know anything about WordPerfect Corp.'s support of it. I gave him my card and asked that he forward it to corporate headquarters in Utah with my request.

The following week, a nice man at WordPerfect called me, but he wasn't too sure what I wanted. I repeated my request for information. This guy, unfortunately, didn't even know what the Dvorak was, let alone any details about his company's support of the layout. He promised to find someone who did know to call me back, but that is the last I've heard from them. It always amazes me when a company ignores a publisher who only wants to publicize his products. Isn't that how they sell more products?

### Look it Up

We just got a copy of the unabridged Second Edition of the huge *Random House Dictionary* and were delighted to find that it has definitions for both 'Qwerty' and 'Dvorak Keyboard'. Under Qwerty, it says "of or pertaining to a keyboard having the keys in traditional typewriter arrangement... Compare with Dvorak Keyboard. See illustration under keyboard". Under Dvorak Keyboard, it says "trademark [it isn't — the Dvorak was patented, but the name was never trademarked] "a typewriter or computer keyboard designed to facilitate speed by having the most frequently used characters on the home row, with all the vowels on the left side. Compare with QWERTY. See illustration under keyboard". And, sure enough, both are illustrated under the 'keyboard' entry.

### Postage Costs

After purchasing the *Quick Strokes* newsletter in 1985 and turning it into *Dvorak Developments*, I actually *dropped* its subscription price \$2. We saved some money by sending the newsletter out by bulk mail, but then I read that up to 11 percent of properly addressed bulk mail is never delivered by the post office (nor is it returned to the sender — it's just tossed out). So we switched to first class mail.

First class "guarantees" delivery or, if it can't be delivered, it is returned. Very nice for us, since we can now see what happens to the mail that isn't delivered. As you know, though, the Postal Service just raised mail rates (just in time for you to file your taxes, in case you didn't notice that). Even before these increases,

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## Product Overviews

Product overviews are detailed descriptions of Dvorak-related products. The regular "for sale" version of the product is tested, then described in full so that readers can make intelligent choices on what products fit their needs. Opinions expressed in the overview are those of the author.

### MacQWERTY: Dvorak on the Mac!

by Bob Nelson

*[ Editor's Note: MacQWERTY was briefly reviewed in the Spring 1986 issue of DvDv. Since that time, MacQWERTY has been updated to include support for the newer Macintosh models. Also, since this is the only product to convert the ever more popular Macs that we have information on, we thought it deserved a more detailed look.]*

**Description:** Dvorak and custom keyboard conversion for the Apple Macintosh (all versions). Includes keyboard overlay stickers that show both Qwerty and Dvorak layouts.

**Supplier:** Paragon Concepts, Inc., 4954 Sun Valley Road, Del Mar CA 92014, (619) 481-1477.

**Machines used for test:** Mac +, Mac 512K, Mac SE.

**M**acQWERTY, from Paragon Concepts, Inc., is an easy-to-use set of keyboard configuration programs that allow the user to choose between the Dvorak and Qwerty layouts. The software comes with a short manual which includes diagrams of two styles of Dvorak layouts (the difference between the two being the treatment of the [, ], { and } characters). The four pages of written instruction are sufficient, for the most part, mainly because the Macintosh makes installation a breeze.

The MacQWERTY disk contains several documents. These include the files >Dvorak1, >Dvorak2, Custom, and >QWERTY (the > character is part of the file name). According to the manual, these programs will work on all models of the Macintosh. I tested them on the Mac 512K, the Mac Plus and the Mac SE and ran into no difficulties. However, the manual recommends that the MacQWERTY programs not be used with other keyboard reconfiguration programs.

>Dvorak1 and >Dvorak2 change the keyboard into one or the other of two alternative layouts. The resulting key locations are diagramed in the manual and will display in the KeyCaps window when it is selected. They are also contained in MacPaint documents found

in the "Keyboard Pics" folder on the MacQWERTY disk. Either Dvorak program can be copied onto your system disk and loaded into the Mac by double clicking on the icon. A convenient alternative to manually loading the program is to select the Dvorak icon and choose "Set Startup" under the Special menu. The Dvorak keyboard of your choice will then be set up automatically whenever you "boot" the computer.

>Custom, as the filename implies, allows you to create your own custom keyboard arrangement. To use this program takes a bit more effort because the reconfiguration files must be edited (or made from scratch if that's your preference) before the new layout can be put in place. The manual explains this process in a quick and clear manner. What is not as clearly shown is how the caps lock, option, shift-option and caps lock-option

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*These programs do everything you would want such utilities to do, and they do it with a minimum of fuss.*

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mapping is done in a "reconfig.fil", but some valuable insights can be gained by examining the sample reconfiguration files supplied by Paragon.

An important note to users of pre-ADB keyboards is included under the heading: **TECHNICAL INFORMATION** on page four of the manual. When using the custom reconfiguration program with a Macintosh that does not have an ADB keyboard (Mac 512, Mac Plus, Mac XL), the proper reconfig.fil must be used. I found that if this advice is ignored, chaos results (in my case, the keys were remapped in a seemingly random manner, rendering the keyboard useless).

The >Custom program is definitely more of a challenge (it took me two or three tries to get one experimental reconfig.fil working properly), but it gives the user a powerful tool for setting up customized arrangements of the keyboard (such as Dvorak one-hand layouts). Most users will have neither the need or desire to use this capability. However, the fact that Paragon chose to include it speaks well for the completeness of its software package.

The MacQWERTY disk also contains two very useful desktop accessories: Dvorak1 and Dvorak2. Strangely, I could find no mention of these DAs anywhere in the manual. If you have a DA/Font mover, one of these accessories (depending on the particular configuration you prefer) can be installed under the Apple menu. I discovered, quite by accident, that when either Dvorak DA is installed in the system, the keyboard will default to Dvorak on startup. Also, with the Dvorak DA on

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## MacQWERTY

Continued from Page 5

board, it is very simple to switch back to the Qwerty layout should that be desired. You simply pull down the menu of DAs under the Apple icon and select Dvorak. A window will pop up with three options: Qwerty, Dvorak or Cancel. Clicking on the Qwerty option will instantly reconfigure the keyboard to the native layout. By bringing up the Dvorak DA again, you can return to the Dvorak layout by clicking on that option.

MacQWERTY turned out to be just what I needed to get the Dvorak keyboard up and running on the Mac. The programs supplied by Paragon Concepts, Inc. for this purpose worked perfectly with all other applications I tried. These included Fullpaint, Superpaint, Pagemaker (ver. 1.3 & 2.0), Write Now, WordPerfect (for the Mac), MacChart, Hypercard, MacDraw and the old standbys, MacWrite and MacPaint. I give my highest kudos to Paragon Concepts for putting together a complete and capable package. These programs do everything you would want such utilities to do, and they do it with a minimum of fuss. MacQWERTY is not copy protected.

*Bob Nelson is a freelance writer and computer consultant, and currently teaches computer literacy at Humboldt State University. He lives at the edge of a Redwood forest in Arcata, California.*

## From the Editor's Keyboard

continued from page 4

postage and shipping is our number one expense — it's even more than printing! Still, I am determined not to raise our subscription rates as long as I can hold out.

What I cannot continue to do, though, is pay for postage that I don't have to. Every day, letters come in asking about what product is available for whatever computer to make it Dvorak, where to buy a Dvorak typewriter, how to learn the Dvorak once they have a typewriter — whatever. Almost always, there is no return envelope, no stamp. If you cannot find the information you need in the newsletter or my book and find you **must** write and ask about it, **please enclose a stamp or two and, legibly written, your name and address!** I prefer you *don't* send an envelope.

For much the same reasons, we prefer not to get phone calls. We can't take orders over the phone (since we do not accept credit cards), and most of the questions that people ask are already answered in the newsletter, which I will be glad to send to anyone that asks for it (a stamp would be nice here, too!) I'll even send samples of the newsletter to anyone else you think would be interested in getting it — just send me their

# Customize

## your keyboard to Dvorak

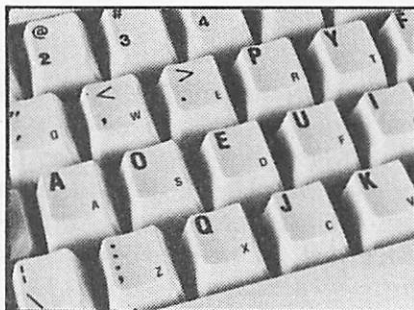
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### DIF Members get DvDv

Starting with this issue, members of the Dvorak International Federation will be once again receiving copies of *Dvorak Developments* as part of their membership benefits. DIF wants to make sure their members are kept up-to-date about the Dvorak, and we're glad to oblige with one year subscriptions. DIF members that are already *DvDv* subscribers will have their subscriptions renewed for a year.

As mentioned in earlier issues, DIF and *DvDv* are **not the same thing**. We are getting together, though, to try not to duplicate each others' efforts in our endeavor to bring Dvorak information to the people that want it. To that end, DIF will concentrate on their consulting efforts and Freelance Communications will concentrate on published materials such as this newsletter, the book *The Dvorak Keyboard* and the PCKey conversion program for IBM PCs.

For more information about DIF, write them at PO Box 128, Brandon VT 05733. And I'm sure they'll appreciate it if you enclose a stamp or two...

## Dvorak will 'Diffuse'

Continued from Page 1

were again striking, and the British Navy adopted the method of serving citrus to their sailors to prevent scurvy — in 1795, 48 years later. In 1865, 70 years later, the British Board of Trade adopted a similar policy, eliminating scurvy in their Merchant Marine.

While it is unlikely that it will take 264 years for the Dvorak to end the scourge of the Qwerty keyboard, Dr. Rogers outlines four parts of a process that must take place before any innovation is diffused into the system. It starts with an innovation, which does not necessarily have to be "new" — an idea is an innovation if it is new to the person adopting it (many, many articles about the Dvorak keyboard talk about it as a "new keyboard

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*Clearly, the diffusion of the Dvorak keyboard is well into the "early adopter" stage.*

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layout" even though it was first introduced in 1932). The parts of the process: news of the innovation must be communicated over a span of time to the people who will be adopting it.

One of the keys to the acceptance of an innovation is *trialability* — something the Dvorak has not had until recently. "New ideas that can be tried on the installment plan will generally be adopted more quickly than innovations that are not divisible," Rogers writes. In the past, the only practical way to try the Dvorak was to buy a Dvorak keyboard or have an existing typewriter converted by a technician — an expensive choice for all but the largest companies. Recently, with programs to convert computers and electronic typewriters that can switch between Qwerty and Dvorak, trialability becomes a viable option for individuals. This is one of the main reasons that the Dvorak has seen such popularity in recent years; the Dvorak is used most by pioneering individuals.

Another key to acceptance is *observability*. "The easier it is for individuals to see the results of an innovation, the more likely they are to adopt (it). Such visibility stimulates peer discussion of a new idea," Rogers says. Dvorak typists who want the Dvorak's use to spread should show off their innovation and tell others of its advantages. As more people switch to Dvorak, the "snowball" effect becomes more apparent. Don't rely on the media to spread the word for you: "interpersonal (communications) are more effective in persuading an individual to adopt a new idea," Rogers says. "Most people depend mainly upon a subjective

evaluation of an innovation that is conveyed to them from other individuals," rather than reading objective scientific studies.

Dr. Rogers classifies the individuals that adopt an innovation into five categories: *innovators*, who watch new trends and are the first to try them; *early adopters*, who follow the lead of the innovators; the *early* and *late majorities*, who constitute the major portion of adopters, and *laggards*, who cling to outmoded ways of doing things even when everyone else around them have moved on. Clearly, the diffusion of the Dvorak keyboard is well into the "early adopter" stage.

What most will want to know is, How long until the majority switches? No one knows. It's a difficult question dependant on many factors. Some particular factor might become dominant and the switch could take only a few years. Or, the early adopters may move cautiously and slowly, lengthening the process.

In the mean time, if you want to help the Dvorak's diffusion along, share your knowledge of the Dvorak with others. If you use the Dvorak, show others how easy it was for you to change and how you benefit from it. Early adopters are the opinion leaders that help innovations spread. All it takes is communication and time.

## Product Alerts

Hooleon Corp., PO Box 201, Cornville AZ 86325, (602) 634-7515 has announced a new set of keytop overlays. The overlays simply have a set of all the standard keyboard keytops so that you can show a Dvorak-only keyboard or any custom layout you choose, such as the Dvorak one-handed layouts. They are \$26.95.

Simon & Schuster has just released a new version of its popular 'Typing Tutor' software (this one dubbed Typing Tutor IV) for the IBM PC with Dvorak lessons included as a standard part of the package. To get Dvorak lessons instead of Qwerty, the program is run with the command TTD instead of TT. Like its predecessor, Typing Tutor III (which does not have Dvorak lessons — make sure you get the right version), Typing Tutor IV is widely available at most software stores. It requires that you already have a Dvorak keyboard — either a replacement keyboard or by using conversion software.

We also understand that several models of Canon typewriters have Dvorak built in. We'll try to get more detailed information for the next issue.



## Back Issues

- **Winter 1986.** "Dvorak Helped Me Overcome Dyslexia". Randy Cassingham's column on the Dvorak keyboard for handicapped typists, interest in the Dvorak by Professional Secretaries International, the increase in the availability of Dvorak keyboards on typing equipment, and 'Dvorak PC'. Product overview on DV Switcher (conversion hardware for the Commodore 64). An item about the Dvorak appearing in popular books. One new product listing, 3 bibliographic notes.
- **Spring 1987.** EZ-50 typewriter wins *DvDv* 'Product of the Year' award. Randy Cassingham's column on the Maxi-Switch "Memory Pro" keyboards, DIF, Dvorak PC, and educator interest in the Dvorak.

## Classified

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Product overview on SmartKey II Plus and XtraKey (conversion programs for CP/M computers). Listing of one new Dvorak product.

- **Winter 1987.** *DvDv* Celebrates its 50th Issue. Randy Cassingham's column on PCKey conversion program. Product overview of SureStroke/Dvorak (conversion/tutorial package for IBM PCs). Listing of one new Dvorak product.

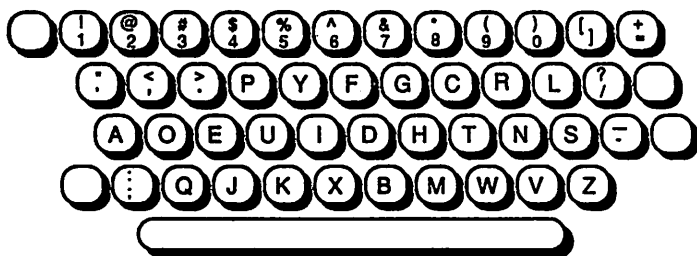
**B**ack issues are \$2 each, postage included. All issues listed are eight pages. Order from Freelance Communications, PO Box 1895, Upland CA 91785. Send a stamp for information about earlier issues.

### Free Listing of Dvorak Products

We've compiled a listing of all of the Dvorak products from the "Product Alert" listings in *Dvorak Developments*. The list also outlines all of the available back issues of the newsletter. For a free copy, send a stamp and your address to Dvorak Products, PO Box 1895, Upland CA 91785.

## Dvorak Developments

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The Dvorak (pronounced "duh-VOR-ack") Keyboard.

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Conforms to ANSI standards.